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ABSTRACT

Research on college student attrition and retention is reviewed. Overall dropout rates and the reasons students give for dropping out are examined, and an attempt is made to assess the outcomes of going straight through college, as opposed to dropping out, temporarily leaving school, and not going to college at all. The demographic, academic, motivational, and personal characteristics of students who are likely to drop out are examined, along with the effect of the general college environmental factors on persistence. College programs designed to upgrade the level of educational service and encourage students to remain in college are described. The programs concern: pre-enrollment information, admissions, college costs and ways to meet them, orientation, faculty and student interaction, academic programs, counseling and advising, career development, campus activities, housing, the withdrawal procedure, two-year colleges, and administration of the retention program. Students' reasons for dropping out include academic matters, financial difficulties, motivational problems, personal considerations, dissatisfaction with college, military service, and full-time jobs. The evidence indicates that college does make a difference in improvement in self-image, social maturity, interests, competence, and employment. A chart indicates what the last 50 years of retention research have shown about the types of students who are more likely to persist and the types who are less likely to persist. An extensive bibliography is included. (SW)

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College Student Attrition and Retention

Leonard Ramist

College Board Report No. 81-1

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INTRODUCTION

Students who drop out of college often suffer personal disappointments, financial setbacks, and a lowering of career and life goals. Concern about the student has led to much research on college student attrition and retention. This research has typically been in terms of statistical analyses of the differences between dropouts and persisters. The reason for the research usually was to understand the phenomenon of dropping out, which was assumed to be a major societal problem.

In the past few years, recognition of the imminent leveling off and decline of the number of students of college-going age has lent a certain sense of institutional urgency not only to the understanding of which students drop out and why, but also to influencing them to stay. In addition to its role in describing a societal ill, the research on the causes of attrition has now taken on the dimension of an urgent administrative necessity to keep students.

At the same time, a new movement for student consumer rights has developed. This movement has challenged long-accepted practices and assumptions about higher education. One assumption that has been challenged is that it is always in the best interest of the student to continue his or her education without interruption. Many students question the placement of any stigma on dropping or stopping out of college. They say that information about options other than four consecutive years of college education should be made available to them, and that administrative procedures for delayed entry after high school, for withdrawal, and for reentry should be made as clear and efficient as possible. This position is consistent with the view of education as a life-long learning process. Thus, while colleges are concerned about what they think are high dropout rates and are gearing to combat this phenomenon, it is clear that any subtle societal stigma will no longer be effective in retaining students.

But college concern about attrition and students' concern about their rights as consumers are really congruous. Although a great deal of sophisticated research has described the reasons for dropping out, with the exception of the very few students who leave due to circumstances beyond their control, the student reasons all stem from dissatisfaction with (or lack of sufficient perceived benefits from) the academic or social life of the institution. For some, this dissatisfaction would be present regardless of the educational service that is provided: they did not really want to go to college, the time is right for a break in their formal education, or their talents could be better used elsewhere. For others, their original college choice was an error, and their dissatisfaction could be eliminated by transfer. For still others, a better, more complete educational service offered by their college may have prevented or reduced the source of their dissatisfaction, may have changed their perception of long-range college benefits, and may have resulted in retention. For the benefit of this latter group, and for the benefit of the perhaps larger group of dissatisfied students who would not consider withdrawal as an option, a college can deal with its dropout problem by doing everything it can to upgrade the educational service, in its broadest sense, that it provides its students. Such an attack on the root causes that contribute to attrition would benefit all students and would be an excellent recruitment tactic for future classes.

This book reviews research as it relates to college student attrition and retention. Overall dropout rates and the reasons students give for dropping out are examined. Attempts are made to answer the series of questions: What difference does it make to go straight through college? Stopout? Dropout? Not go to college at all? Examined next are the demographic, academic, motivational, and personal characteristics of the students who are likely to drop out and how general college environmental factors are related to persistence. The concluding sections describe college programs that would upgrade the level of educational service, thereby encouraging students to stay.

OVERALL GRADUATION AND DROPOUT RATES

Given the multitude of dropout studies over the years, it may appear that it would be very easy to compute an overall dropout rate. However, there are several problems related to definition.

(1) In some studies, transfers are considered dropouts and in others they are not. Transfers are dropouts from the college of initial entry, not from higher education.

(2) Dropout rates depend on the timing of the determination of dropout. Because a substantial proportion of students graduate in the fifth year after entry into a four-year college, a dropout rate calculated in terms of graduates after five years would be substantially lower than one calculated in terms of graduates after four years. Indeed, the dropout rate calculated in terms of graduates after ten years is still lower. To be sure of the permanency of a dropout—that there is not a later reentry into higher education—each person would have to be tracked for the rest of his or her life.

(3) Rates vary widely among different colleges. For example, a simple four-year nongraduation rate from four-year colleges may vary from 10 percent to 85 percent (Summerskill, 1962; Noel, 1978). The inclusion of students that originally entered two-year colleges has a particularly confounding effect because, as expected, their rates of four-year degree completion are relatively low. Therefore, different samples of students from different colleges will yield different results.

(4) In addition to the difficulties already present in comparing studies with different definitions, timing, and samples, there may be real changes over time. That is, dropout rates and reasons for dropping out may differ from one period of time to another.

Despite the difficulties, a careful review of past studies yields the tentative conclusions displayed in Table 1 about the overall graduation and dropout rates of entrants to four-year colleges, based on a representative cross section of four-year colleges.

TABLE 1. Overall Graduation and Dropout Rates

Graduation within four years after entry:		
From original college of entry	35-40%	
From different college	10-20	
Total - from any college 4 years after entry		45-60%
Graduation 5 years after entry (any college)		10-15
Graduation 6 or more years after entry (any college)		10-15
Total graduation (any college)		65-90
Dropouts who never receive degree		10-35

Several major studies have documented the 35-40 percent rate of graduation within four years after entry from the college of entry shown in Table 1. In a large study of 16,000 students from the 1931 and 1932 entering classes for the United States Department of Education, McNeeley (1937) found a 38 percent graduation rate. In a similar study of 13,000 students from the 1950 entering class, Iffert (1958) found a 39.5 percent graduation rate. Summerskill (1962) found that the median rate for 35 studies done between 1920 and 1960 was 37 percent. Eckland (1964) found a rate of 36.5 percent for the University of Illinois.

Three large longitudinal studies undertaken by the American Council on Education (ACE) substantiate the 45-60 percent total graduation rate within four years from any college. They are identified in Table 2.

TABLE 2. Graduation Rate Within Four Years from Any College

Entering class	Rate	Source
1961	53%	El-Khawas and Bisconti (1974, p. 60)
1967	57	Bayer, Royer, and Webb (1973, p. 24)
1968	53	Astin (1975, p. 11)

The latest evidence, in the National Longitudinal Study (NLS) of the class of 1972, conducted by the U.S. Department of Health, Education, and Welfare, shows that 15 percent of the graduating high school class finished a four-year college program within four years (National Center for Education Statistics, 1978, Volume IV, p. 35). Given the 29 percent and 15 percent original entrance rates into four-year and two-year colleges, respectively (Fetters, 1977), and assuming a four-year degree completion rate of three to one between four-year and two-year original college entry (found by Bayer, Royer, and Webb, 1973), an estimate of the comparable four-year graduation rate for the four-year college entering class of 1972 is only 45 percent. Although still in the 45-60 percent range, it is possible that this rate has decreased substantially from the 1967 rate of 57 percent.

The fifth-year graduation rate of 10-15 percent is obtained from El-Khawas and Bisconti (1974, page 65). They show a fifth-year rate of 14 percent for the class of 1961 and 13 percent for the class of 1966. Finally, they show, for the class of 1961 only, a sixth-year degree receipt rate of 4 percent; seventh-, eighth-, and ninth-year rates of 2 percent, and a tenth-year rate of 1 percent. This total of 11 percent between the sixth and tenth year for the class of 1961 is the basis for 10-15 percent estimate of graduation six or more years of study after entry.

The total graduation rate range of 65-90 percent implies a total dropout rate from higher education of 10-35 percent. Summerskill (1962) had made a general statement that this rate is about 40 percent. Although his statement has often been quoted, it was made before the evidence provided by the recent ACE longitudinal studies that there is indeed greater persistence (in its true sense) toward a degree several years after the originally expected four-year graduation date than he might have assumed.

The best single long-term graduation/dropout estimate is from the El-Khawas and Bisconti (1974) 10-year longitudinal data on the class of 1961: 80 percent of the four-year college entrants received a degree within 10 years and 20 percent did not. The more recent NLS data on the class of 1972 may show a higher dropout rate, or after further follow-up evidence is in, it may merely show a higher stopout rate.

Of the 60-65 percent who do not graduate from their college of entry within four years, the interruption, transfer, or termination is made in approximately equal percentages (of approximately 15 percent) in each of the following four periods:

(1) during the freshman year,
(2) between the freshman year and the sophomore year,
(3) during the sophomore year,
(4) after the sophomore year.

Almost three-quarters of the students who complete their sophomore year without interruption complete all four years without interruption.

STUDENTS' REASONS FOR DROPPING OUT

There is a large body of literature that is devoted to analyzing the reasons that students themselves give for dropping out. In the process of summarizing the findings of over 100 research studies during a 25-year period, Pantages and Creedon (1978) categorize these reasons and show their relative frequency as follows:

Academic Matters. This most frequently cited category includes poor grades, boredom with courses, change in career goals, and inability to take desired courses or programs. These reasons are given most often by men, by those in technical institutes, by those with a poor high school record, by those who drop out late in the freshman year,and by those who later transfer to another college or return. These reasons are given least by those in teacher colleges or by those who drop out in the senior year. In contrasting Summerskill's (1962) summary of several older studies with more recent studies, there appears to be a shift of emphasis from poor grades to boredom with courses (Astin, 1975) and to the irrelevance of school work (Fetters, 1977).

Financial Difficulties. This second most frequently cited category is used primarily by minorities, women with a poor high school record, early dropouts, and temporary dropouts. It is used least by those in technical institutes or by women with a good high school record. Interestingly, counselors rate this category much

lower in importance than do students. Student reports of financial difficulties could be partially due to the fact that financial reasons are more "socially acceptable."

Motivational Problems. This category includes uncertainty about educational and occupational goals, lack of interest in studies, and inability or unwillingness to study. It is cited particularly by early and permanent dropouts, by academic dropouts, and by women with a poor high school record. It is rarely cited by women with a good high school record. The fact that it is cited most often by academic dropouts could mean that a lack of goal clarity contributes to low grades.

Personal Considerations. This category includes emotional problems, problems of adjustment to college life, "getting one's head together," marriage, pregnancy, family responsibilities, and illness. Marriage is given as a reason most often by women and minorities. This category is cited least by those in technical institutes. Although students do not rate these reasons as high in importance, counselors indicate that socioemotional problems are the most important reasons for attrition.

Dissatisfaction with the College. This category includes dissatisfaction with the size, the social or academic environment, the regulations, etc. It is cited most often by early and permanent dropouts.

Military Service. This category has become somewhat dated, but may take on more importance if the draft is reinstated. It was cited by those who later reenrolled.

Full-Time Jobs. This reason is cited primarily by early dropouts and those in teacher colleges or two-year colleges.

Two other reasons reported by many students, which do not easily fit into the Pantages and Creedon categories, are the expressed need for new, practical, nonacademic experiences and the lack of initial plans to obtain a degree, particularly for two-year colleges.

STRAIGHT THROUGH COLLEGE, STOPOUT, DROPOUT— WHAT DIFFERENCE DOES IT MAKE?

Effects of College

There is some important research documenting that college does have a significant effect on people's lives. Withey (1971) found that college graduates are in general more optimistic and have better opportunities, more job security, better working conditions, and higher job satisfaction. He found that they also tend to join more organizations, take on more leadership roles, are better informed about national issues, and vote more often. As shown in Table 3, the unemployment rate is directly related to the degree of educational attainment.

TABLE 3. Extent of Education and Unemployment Rate*

Extent of Education	Unemployment Rate
4 or more years of college	4.3%
1-3 years of college	6.7
4 years of high school	8.3
1-3 years of high school	11.8

*United States Bureau of Labor Statistics data displayed in United States Bureau of the Census, 1978, page 400.

Of course, it is not clear that college caused these outcomes. It could be that those who would more likely experience these results seek out college.

As part of a landmark study on the determinants of economic success in America, Jencks (1977) studied the financial effects of college. Even after controlling for family background and ability, Jencks and his colleagues found that college graduates enter higher status occupations than nongraduates and advance in status faster. On a 0 to 96 scale of current occupational status, each year of college is worth 5 to 6 status points, and degree completion is worth an additional 5 "bonus" status points—a total college effect of about 27 status points (one standard deviation). A college dropout presumably would lose the 5 to 6 status points per uncompleted year plus the 5 degree completion status points. As a result of higher occupational status, college graduates have about a 50 percent earnings advantage, which is reduced by about one-third if family background and ability are controlled. These financial effects of college appear to be even more significant for minorities and students from low-income families.

Based on a 10-year effort by the Cooperative Institutional Research Program of the American Council on Education, which utilized longitudinal data from over 200,000 students and 300 institutions, Astin (1977) reported findings on a major evaluation of the effects of the college experience. Longitudinal data collected before and after college entry show that college students develop a more positive self-image, both in an interpersonal context and in terms of intellectual competence. They also develop more artistic interests, become more liberal politically and socially, and become more competent in a great variety of areas. However, they show marked declines in interest in traditional religious behavior, business, and altruism: they display an increase in hedonistic behavior.

Although some of these changes appear to be the result of maturation, Astin concluded that most appear to be true effects of college. One piece of supporting evidence is that the college effects were not related to age. Another is that the greater the student involvement on campus, the more pronounced were the college effects, even after all other significant variables were controlled. For example, dropouts had a much smaller increase in interpersonal self-esteem than did students who stayed in college, particularly those who were active in fraternities or sororities.

However, another recent large study, part of the National Longitudinal Study of the class of 1972, offers contrary evidence. Fetters (1977) reported that there was no significant difference in self-esteem in 1974 between students in college and those who had withdrawn from college in the previous two years. Perhaps it takes longer than two years for these effects to become apparent.

In another large study of college effects, Trent and Medsker (1968) compared an employed group of high school graduates with a group of students who spent the four years after high school in college. Even though they controlled for academic ability and socioeconomic characteristics, they still found that, four years after high school, the college group showed a three-times greater increase on a social maturity scale than did the employed group.

Some contrary evidence notwithstanding, we tentatively conclude that college does indeed make a difference in self-image, social maturity, interest, competencies, and employment.

Leave of Absence

Does a leave of absence alter the effects of college in any significant way? Pantages and Creedon (1978) reviewed several longitudinal studies, which showed that about 70 percent of the students who leave a four-year college eventually reenroll at some other college. NLS data (Fetters, 1977) show that about one-third of the returning students return after one year. Of those returning, about 60 percent eventually earn a baccalaureate degree, a rate somewhat lower than the range of 65-90 percent for entering freshmen.

Cope and Hannah categorized the reenrollment and eventual graduation rates by type of institution as shown in Table 4. Also, Haagen (1977) reported that for highly selective liberal arts colleges, over 90 percent return, 80 percent within one year.

TABLE 4. Rates of Return and Graduation, by Type of Institution*

Type of Institution*	Rate of Return	Rate of Graduation
Prestigious private universities	90-95%	80-85%
Better public universities	80-85	70-75
Typical state universities	60-70	50-60
State colleges	40-50	30-40
Junior and community colleges	20-30	10-20

*Cope and Hannah (1975, page 61). Private liberal arts colleges were purposely excluded because of their diversity.

After reviewing a large number of personal histories, Cope and Hannah (1975) identified some interesting patterns of students who leave college:

—Students with high academic potential who fail tend to transfer to another college and do well.

—Upper middle class American students who question the value of college tend to reenroll after a year of vagabonding, particularly in Europe.

—Students who suffer a severe disappointment in a relationship, particularly women, transfer to another college, usually closer to home.

—Students who become disenchanted with the bureaucracy at a large university transfer to a small college.

—Students who wish to have the anonymity and excitement of a large university transfer to one.

—Students with a strong academic record and a lack of commitment to a degree find a job and do not give college much further thought.

Haagen reported the activities in which students returning to selective liberal arts colleges spent a substantial amount of time during their leave of absence, as shown in Table 5.

TABLE 5. Activities During Leave of Absence*

Employment	42%
Individual study	39
Formal academic study	36
Travel	36
Recreational activities	30
Volunteer service	12
Personal matters	12
Health	4

*Haagen (1977, page 65).

Of these students, 88 percent stated that their leave was positive, 4 percent that it was neutral, and only 8 percent that it was negative. Many had experiences relating to careers; others improved social skills by spending time outside an intellectual and analytical environment, in particular outside their student role; others developed appreciation of different cultures, people, life-styles, and systems of values; and others dealt with psychological problems that may have hampered their academic performance. The great majority felt more self-confident and independent, less timid, and more effective in relating to faculty. After their return, they were less dependent on faculty advice, but more insistent on faculty intellectual leadership.

Fetters (1977) studied the 1972 high school graduates who withdrew from college, but had not reenrolled within two years. Compared to the 6.2 percent overall unemployment rate of those looking for work from the class of 1972, the students who withdrew from two-year colleges and those who withdrew for academic reasons from four-year colleges had relatively high unemployment rates of 9.6 percent. However, those who withdrew voluntarily for nonacademic reasons had a rate which was only slightly higher than average, 6.5 percent. The four-year college dropouts who had a job were more likely to be dissatisfied with it (21 percent dissatisfied) than were two-year college degree recipients (14 percent) or two-year college dropouts (16 percent), particularly as an opportunity for using past training and education (41 percent), for promotion and advancement (35 percent), and for developing new skills (31 percent).

Astin provided data shown in Table 6, by sex and marital status, on employment in 1972 of 1968 college entrants who dropped out and who graduated.

TABLE 6. Employment Status of Dropouts and Graduates Four Years After College Entrance, by Sex and Marital Status*

	Married			Single		
	Men	Women	Total	Men	Women	Total
Dropouts						
Full-time job	93%	49%	71%	74%	77%	75%
Part-time job or looking for job	5	17	11	19	15	17
Not looking for job	2	34	18	8	8	8
Graduates (not in graduate school)						
Full-time job	78	63	70	55	65	60
Part-time job or looking for job	16	26	21	32	28	30
Not looking for job	6	11	9	13	7	10

*Astin (1975, page 19)

Among the dropouts, married men were the most likely to have a full-time job and married women were the least likely to have one. Married female dropouts were the most likely not to be looking for a job.

Although married graduates held full-time jobs at about the same rate as married dropouts, the married graduate sex differences were markedly attenuated. Single graduates were less likely to hold full-time jobs than single dropouts; in particular, many single male graduates appear to choose to take time off after college.

Comparing the dropouts and graduates for three classes at Princeton University, Pervin et al. (1966, pp. 46-47) concluded that, at least economically, it is not clear that graduates have the advantage. In two of the three classes, dropouts had slightly higher average incomes than graduates. Although they cautioned readers not to draw conclusions because of possible bias in the self-selected nature of the returns of questionnaires, they did conclude that the data indicate many Princeton University dropouts find themselves unable or unwilling to use their talents in the academic world but able to prosper in the business world.

Many researchers conclude that dropping out is overrated as a problem, and that the dropout is usually taking an assertive step of independence from the parents, a constructive response to a situation that he or she finds untenable (e.g., Timmons, 1978; Haagen, 1977; Kesselman, 1976; Cope and Hannah, 1975). Most students who take a leave are happy about it, do return, and graduate at almost the same rate as those who do not take a leave. A great number who do not return have full-time jobs and do well economically.

Conversely, other researchers, led by one of the foremost and current in this area, Alexander Astin (1975, 1977), suggest that students should be counseled against stopping out. Astin found that students with any interruption in their four years of college resemble dropouts more than persisters. He expressed fears that taking a leave of absence at best delays, and at worst precludes, the usual developmental changes that occur in college, occupational entry, and subsequent progress.

Astin notwithstanding, we tentatively conclude that students who take a leave of absence and return experience beneficial effects. We also conclude that although students who take a leave of absence and do not return lose the beneficial effects of college completion, many fare well indeed. There is no evidence that college completion without the motivation to do so has the beneficial effects that are usually associated with college completion.

STUDENT DEMOGRAPHIC FACTORS

Age. About half of the research studies have found that attrition rates are similar for old and young students (e.g., Kohen et al., 1978; Gable, 1957; Bragg, 1956), half have found that older students are more likely to drop out (e.g., Brummer et al., 1978; Astin, 1975; Trent and Medsker, 1968; Newman, 1965).

Sex. Studies conclude that there are no dropout differences between the sexes, that males drop out more, and that females drop out more. At least five factors explain these conflicting results.

(1) Men are more likely to stop out during their undergraduate years, but are more likely to return and eventually graduate. Therefore, studies of dropouts during the freshman year are more likely to show that males have higher dropout rates, and long-term follow-up studies are more likely to show that females have higher dropout rates. In the College Board's Admissions Testing Program Summary Reporting Service (ATP-SRS), colleges that identify which of their enrolling freshmen persist through the freshman year receive profiles that can be used to examine the characteristics of freshman-year dropouts. In the approximately 300 colleges receiving this information, males consistently have a higher freshman-year dropout rate by about two percentage points, even after controlling for academic ability of the students and size and academic level of the colleges. Also, in the 10-year follow-up study reported in El-Khawas and Bisconti (1974), females show a much higher four-year graduation rate, by about 10 percentage points. However, 10 years after college entry, males have a higher graduation rate by about five percentage points!

(2) Women in four-year colleges are more likely to transfer to another college (Timmons, 1978; Cope and Hannah, 1975; Bayer et al., 1973). Therefore, studies of dropouts from individual colleges that count transfers as dropouts are likely to show higher female dropout rates than are institutional studies that exclude transfers or studies of dropouts from higher education in general. Also, men are more likely to transfer from a two-year to a four-year college (Bayer et al., 1973).

(3) In the last 10 years, the number of women entering higher education has increased rapidly. Since women entrants used to be a more selective group, older studies that did not control for academic ability would have shown relatively lower female dropout rates than newer studies or studies that did control for academic ability.

(4) Because women tend to leave for nonscholastic reasons and men are more likely to be academic dropouts (Pantages and Creedon, 1978; Tinto, 1975; Spady, 1970), studies that focus only on voluntary withdrawals show women with relatively higher dropout rates than studies that do not distinguish between voluntary and involuntary withdrawals.

(5) There are large differences between the sexes at different institutions: for example, women are more likely to drop out when the ratio of men to women is high (Astin, 1977; Cope et al., 1971; Astin, 1964) and men are more likely to drop out of large, nonselective universities (ATP-SRS data; Astin, 1975).

Parental Income. ATP-SRS freshman year dropout rates are about the same for all income levels except that the very lowest levels, below $9,000, exhibit somewhat higher dropout rates. Astin (1975) shows more pronounced four-year dropout rate decreases as income increases, among all income levels. However, the inclusion of income in a regression analysis with parental education, student ability, and motivation failed to add anything over and above the contribution of the other variables.

Parental Education. Although Pantages and Creedon (1978) conclude that parental education does not appear to be a major factor, the preponderance of evidence is that it is (e.g., Fetters, 1977; Astin, 1975). The student from an educated family is more likely to value higher education, even after controlling for the effects of other variables.

Father's Occupation. Some students give lower dropout rates for professional occupational levels (e.g., Trent and Medsker, 1968), and others do not (e.g., Rosemann and Kirk, 1970). However, the dropout-rate differences among occupational levels disappear when high school performance is controlled (Summerskill, 1962).

Ethnic Group. Without controls for academic ability and socioeconomic status, blacks have slightly higher dropout rates than whites. However, after controls, most researchers have found that the rates are essentially the same (e.g., Kohen et al., 1978; Fetters, 1977; Astin, 1975); in fact, Peng and Fetters (1978) found that the dropout rate for whites was slightly higher than for blacks. Astin (1975) found that blacks are more likely to drop out from predominantly white colleges than from predominantly black colleges. Fetters (1977) found that after controls Hispanics have lower dropout rates than blacks or whites in four-year colleges; Astin (1975) found a lower four-year college dropout rate for Chicanos. Astin (1975) also found that after all other variables are considered, being Oriental reduces the chance of dropping out by 10 percentage points for women and 7 percentage points for men.

Religion. With or without controls, Jewish students have been consistently found to be more likely to persist than non-Jewish students (e.g., Fetters, 1977; Astin, 1975; Newman, 1965).

Marital Status. Astin (1975) reported that although only 2 percent of students were married when they entered college, marital status had a substantial effect on persistence for both sexes, but in the opposite direction. It decreased the man's chances of dropping out by about 8 percentage points, but it increased the woman's chances of dropping out by about 11 percentage points.

Hometown Location. ATP-SRS data consistently show that whereas the highest dropout rates are for those out-of-state students who are from states that are not contiguous to the state in which the college is located, the lowest dropout rates are for students from contiguous states; typically, dropout rates of in-state students are in the middle.

Hometown Size. Students from small towns appear to be somewhat more likely to drop out (Astin, 1975; Cope, 1972; Newman, 1965). There is no consistent pattern for big cities or surburbs.

STUDENT ACADEMIC FACTORS

High School Record. High school grade-point average (GPA) and high school class rank are the best predictors of persistence and attrition (e.g., Pantages and Creedon, 1978; Fetters, 1977; Astin, 1975; Summerskill, 1962). The correlations of high school record with persistence have ranged from 0.25 to 0.50. In a recent multicollege four-year study, Astin (1977, page 108) shows a correlation of 0.28, out of a multiple correlation of 0.42 for all freshman characteristics used.

Scholastic Aptitude Test (SAT). ATP-SRS data show that the freshman year dropout rate ranges from 9 percent for those scoring 600 or above on SAT-mathematical sections to 27 percent for those scoring below 300. The difference in four-year dropout rates probably would be greater. However, after controlling for high school record, the additional predictive strength is only moderate.

College Board Achievement Tests. ATP-SRS data show that for relatively selective colleges (SAT-verbal score average of at least 480) the freshman-year dropout rate of students who merely took an Achievement Test is

half that of those who did not take an Achievement Test. Also, the higher the scores, the less likely is the student to drop out.

High School Program. A college preparatory program is a major factor in predicting retention (Peng and Fetters, 1978; Fetters, 1977). Of course, this may be both because this type of program attracts students who are more likely to persist and because it prepares students to be better qualified for and have a greater commitment to college education.

High School Academic Rating. Astin (1975) has found that student ratings of the academic quality of their high schools add significantly to the precision of the dropout prediction. This contrasts with earlier unsuccessful attempts to use the academic quality of the high school to adjust high school grades in order to predict college grades (Lindquist, 1965).

High School Size. Some studies have found that graduates of very small high schools are more likely to drop out (Cope, 1972; DeVecchio, 1972; Little, 1959), but others have found no such relationship (Panos and Astin, 1968; Schmid and Reed, 1966; Slocum, 1956).

High School Type. Research findings are mixed (Pantages and Creedon, 1978; Sexton, 1965). ATP-SRS data show that the freshman-year dropout rates between public and private high school students are almost identical. If there is any difference, it is in nonselective colleges, where private high school students are slightly more likely to drop out.

Years of Study of Various Subjects. ATP-SRS data show that students who study English (particularly), mathematics, foreign language, and physical science for more years in high school are more likely to persist through their freshman year of college, even after controlling for selectivity of college. However, the number of years of study of social studies or biological science is unrelated to persistence.

Performance in College. Most studies have found a very significant relationship between performance in college and attrition, even after other variables are controlled. The causation may be in either direction, though. Poor grades may be the result of a decision to drop out, or poor grades may be the cause of a "failure identity." Astin (1975) goes so far as to suggest more college grade inflation in order to reduce dropout rates.

Areas of Study. After controlling for college academic level, ATP-SRS data show that some areas of study have relatively high dropout rates—agriculture, forestry and conservation, physical education, architecture and environmental design, engineering, psychology, and police science—and others have relatively low dropout rates—biological science, health-related professions (particularly premedicine), history and cultures, and elementary education. However, the most interesting aspect of these data is the differences among colleges, perhaps indicating the need for college-specific dropout information.

Study Habits. Generally, students with poor study habits are more likely to drop out, and those who spend more time per week studying are more likely to stay (Pantages and Creedon, 1978; Demitroff, 1974; Sexton, 1965). Astin (1975), however, finds two results which, on the surface, are surprising. (1) Students admitting to "careless mistakes on tests" were more likely to persist: perhaps "careless mistakes" are more likely to be made by the better student or the student who has the ability to be self-critical. (2) Students who "kept my desk or study place neat" or who "carefully went over diagrams or tables in the textbook" tended to drop out: perhaps "neatness" means doing little or no homework and "carefully" is an attempt to go over minute details to comprehend them.

STUDENT MOTIVATIONAL FACTORS

Student motivational factors may be considered the sine qua non of persistence, and therefore the most important target of persistence research. However, they may be considered so obviously related to persistence as to make research on the relationship trivial.

With the exception of those who do not have the requisite ability, students continue in college because they choose to do so and drop out because they choose to do so, for reasons that may or may not be accurately assessed. For a student with the requisite ability, even involuntary withdrawal due to low grades is really voluntary: a result of the student's choice not to do the work that is necessary to obtain sufficiently high grades.

Therefore, motivational factors are really the same as persistence factors: the student who wants to do so will persist and the student who wants to do so will drop out. Any college, parental, or peer group interaction has the potential to affect the student's satisfaction or dissatisfaction with college, and therefore his or her motivation to continue.

Of course, the student's precollege attitude may be a very strong influence. For some students, expectations may be self-fulfilling prophecies: some students who are not highly committed toward a degree, who expect to dislike the college, and who expect to leave before obtaining a degree, do so; some students who are highly committed toward a degree, who expect to like the college, and who expect to obtain a degree, do so. However, unfortunately confounding the large number of research studies that have analyzed motivational factors is a well-known opposite effect: that high expectations (perhaps unrealistically high) can lead to disappointment, and that low expectations (perhaps unrealistically low) can lead to a pleasantly surprising satisfaction. Also, although commitment is usually helpful, a compulsion to achieve may lead to, or be a symptom of, psychological stress, which in turn could lead to dissatisfaction with the college, poor performance, and dropping out.

The vast amount of research on motivational factors is not much help in analyzing how these factors affect persistence, as can be seen in the following sections.

Degree-Level Goal. ATP-SRS data show that, even after the controlling for college ability level, students who do not expect to obtain a four-year degree are much more likely to drop out during their freshman year. Fetters (1977) confirmed this result; he showed two-year nonacademic dropout rates from four-year colleges of 54 percent for students who did not expect to enter college, 41 percent for students who expected to enter college but not to complete it, and only 19 percent for students who expected to complete college. However, except for those who do not expect to complete a four-year degree, ATP-SRS data show no differences in first-year dropout rates among students who do or do not want graduate study and who are or are not decided on their educational goal. However, with respect to four-year dropout rates, Astin (1975) finds that, after controlling for other factors, compared with students who aspire toward a doctoral or professional degree, wanting a master's degree adds about 5 percentage points to the dropout rate and wanting a terminal bachelor's degree adds about 12 percentage points to the dropout rate.

Vocational Goal. Some researchers have found that having a vocational goal increases persistence (Frank and Kirk, 1978; Hanson and Taylor, 1970; Sexton, 1965), but others have found no such relationship (Panos and Astin, 1968; Schmid and Reed, 1966; Slocum, 1956). ATP-SRS data show that being undecided on area of study is not related to a higher first-year dropout rate.

Precollege Dropout Expectation. Several findings have supported the "self-fulfilling prophecy" theory (Pantages and Creedon, 1978; Rossmann and Kirk, 1970; Marks, 1967). However, although Astin (1975) found that the four-year dropout rate for students who said they had a very good chance of dropping out was twice that of students who said they had no chance of dropping out, after other variables were controlled, the remaining effect of precollege expectation was very small.

Reasons for Attending College. Siffert (1958) found no relationship between dropouts and persisters with respect to the reasons students originally gave for attending college.

Parental Influence. Most research has shown that parental expectations of college completion are strong determinants of student goals and student persistence (see, for example, Tinto, 1975; Sexton, 1965). However, some studies have failed to find this relationship (Rossmann and Kirk, 1970; Barger and Hall, 1965). Pantages and Creedon (1978) conjecture that parental influence depends on the quality of the parent-student relationship. Timmons (1978) concludes that dropping out is often a constructive step of the assertion of independence from parents, especially for males who withdraw voluntarily.

STUDENT PERSONAL CHARACTERISTIC FACTORS

Personality Traits. It is possible to find studies that conclude dropouts are autonomous, mature, intellectual, committed, creative, assertive, critical, nonconforming, and unconventional; it is possible to find other studies that conclude dropouts are irresponsible, anxious, impulsive, rebellious, unstable, unimaginative, unadaptable, aloof, disagreeable, immature, impetuous, self-centered, uncooperative, likely to overemphasize per-

sonal pleasures, resentful of regulations, lacking self-sufficiency, and uncertain about the future (Pantages and Creedon, 1978; Cope and Hannah, 1975). After Sharp and Chason (1978) found several Minnesota Multiphasic Inventory (MMPI) scales to be variables that significantly distinguished between dropouts and persisters, they tested their results on a second group of students. The results failed to replicate, and they concluded that prior research showing significant relationships between personality traits and persistence were sample specific.

Expressed Need for Personal Counseling. ATP-SRS data show consistent findings for 1976 and 1977 that students who wish to receive personal counseling assistance are 8 percentage points more likely to drop out of a relatively nonselective college in their freshman year than students who do not seek personal counseling assistance. It is very likely that this difference would be even greater with respect to a longer term dropout rate. In contrast, the freshman year personal counseling dropout rate difference was consistently only 2 percentage points for relatively selective colleges.

Smoking Cigarettes. A surprising finding of Astin's (1975) study is that, after controlling for other variables, smoking has a pronounced relationship with attrition, especially for black students: a black student who smokes has a dropout probability which is about 20 percent greater than one who does not smoke (the comparable difference for whites is 6 percent).

GENERAL COLLEGE ENVIRONMENTAL FACTORS

Type of College. Two-year colleges have much higher two-year withdrawal rates than four-year colleges: 39 percent compared to 24 percent (Fetters, 1977, page 23). These differences are primarily, but not completely, explained by greater student dropout-proneness, including lower ability level, lower student degree expectations, and fewer institutional resources for financial aid, job opportunities, and student housing (Astin, 1975).

Control of College. ATP-SRS data show that even if academic level, student ability, and parental income are controlled, public four-year colleges have a freshman dropout rate that is about 3 percentage points higher than that of private four-year colleges (including universities). Fetters (1977) shows a 6 percentage point public-private difference after the second year. Astin (1975) shows a four-year dropout rate difference of 3 percentage points, primarily because of the difference for males in universities (males in public universities had the highest dropout rate of 33 percent and males in private universities had the lowest dropout rate of 20 percent). Astin (1975) points out that private colleges have lower dropout rates than public colleges because of greater resources in residence halls, financial aid, and work opportunities. Astin (1977) argues that the expansion of the public sector of education, with its reduced facilities and opportunities for student involvement, in effect dilutes the benefits of college, in addition to increasing the dropout rate. ATP-SRS data show that for small colleges, where the differences in resources may not be significant, public colleges have lower dropout rates.

Religion. Religiously affiliated colleges, especially those associated with Roman Catholicism, have substantial holding power over what would be predicted from student and institutional characteristics (Astin, 1975). Perhaps this is because of an emphasis on community and cohesiveness.

Coeducation. Dropout rates at single-sex colleges are substantially lower. For men, this difference is accounted for by student and institutional variables. For women, other variables only partially explain this difference: perhaps it is because women at single-sex institutions have less of a tendency to marry and are more involved and satisfied with college (Astin, 1975, 1977).

Location. With or without controlling for student or institutional factors, colleges in the Northeast and South have relatively low dropout rates, and colleges in the West and Southwest have relatively high dropout rates (Astin, 1975, 1977).

Academic Level. Fetters (1977) shows that the higher the academic level, based on admissions-test score averages, the lower is the dropout rate. ATP-SRS data show that this is true even if individual test scores are controlled; that is, for any given student test-score level, the dropout rate is higher at institutions that have lower test-score averages. Attending a selective college results in a lower undergraduate grade-point average, but also results in much higher student satisfaction with college and does not increase the chances of drop

ping out or going on to graduate school (Astin, 1977). Most of these effects are due to the increased opportunities for financial aid, work status, and residence at selective colleges.

Size. For both 1977 and 1978, ATP-SRS data show higher dropout rates for large colleges that are nonselective or moderately selective, particularly for males with low test scores. Some researchers have also found higher dropout rates for large colleges (Holmstrom and Knepper, 1976; Nelson, 1966), others have found the opposite (Tibby et al., 1978; Kamens, 1971), and still others have found that size has no significant or clear effect (Pantages and Creedon, 1978; Astin, 1975; Tinto, 1975). In his large survey of students entering in 1966, Astin (1977) found that almost all student involvement, which he finds is the most important aspect of persistence, is decreased by attending a large rather than a small institution—the only exception was involvement in student demonstrations.

Match of Student and College. Different colleges have different images and therefore attract different types of students. The "college fit" theory states that the greater the congruence between the student's background, values, goals, attitudes, and interests, and those of most of the students at the college, the more likely it is that the student will persist. In almost all research studies, this theory has been supported (Pantages and Creedon, 1978; Starr et al., 1972; Hackman and Dysinger, 1970). Astin (1975) specifically evaluates certain types of fits. In particular, he finds that the fit theory has a substantial effect on persistence for size of hometown and size of college, and moderately high effects for religion, race, and the comparison of parental education with selectivity level of the college. However, he rejects the notion that there are beneficial persistence effects if the student's ability is matched with the selectivity level of the college. ATP-SRS data confirm this result: students with high test scores are more likely to persist than students with low test scores, for any college selectivity level; and colleges with high selectivity levels have lower dropout rates than colleges with low selectivity levels, for any student test-score group. To the extent that one accepts the fit theory, one could try to identify and track, for special counseling or for increasing their involvement with campus activities, students who are different from typical students at the college.

COLLEGE PROGRAMS AND THEIR EFFECTS

A college cannot, and, for the benefit of its students, ought not try to hold on to every student who wishes to drop out or stop out. Indeed, the ideal retention program may not be a retention program at all. Although it may be possible to reverse some inclinations to leave, a more complete and long-term beneficial strategy is to encourage retention of students inclined to leave, of current students not yet inclined to leave, and of future students, by upgrading the level of educational service that is provided for the benefit of the students.

Preenrollment Information

In this age of concern about enrollments, a college should resist the temptation to recruit as many students as possible, in any way that works. Only by undertaking a higher social responsibility to help students enter the postsecondary course of study that would best meet their needs can the college help to reduce the personal, institutional, and social costs of an academic mismatch.

One way of promoting student satisfaction with the college is to ensure that from the beginning—that is, before enrollment—the student receives information about the college that is as accurate, up to date, complete, and understandable as possible. Although this applies to every institutional-student contact, the primary source of information about the college is the college catalog. Seegle (1969) found major discrepancies between catalog descriptions and perceptions of enrolled upperclassmen at eight colleges. Some of the discrepancies were out-of-date information, course descriptions that are significantly different from course content, pictures of students working on scientific equipment not ordinarily available to them, and many pictures of minority students when very few minority students were enrolled at the colleges.

Incomplete catalog information is even a bigger problem. A survey of 210 catalogs by the Carnegie Council on Policy Studies in Higher Education (1979) discovered that 81 percent did not list the instructors of various courses, 72 percent did not tell when or how often courses were offered, 18 percent had no information on high school courses required for admission, 17 percent had no information on financial aid, and 5 percent did not describe the content of the courses. Unless specific information is provided otherwise, it is very possible

for the potential student to expect that all courses are available every year, that all courses are taught by faculty members, that all faculty members teach undergraduates, and that no particular high school courses are required. A student with some of these misperceptions may become disillusioned with the college and later drop out. What may be a small, insignificant disappointment if known before enrollment can become a major source of dissatisfaction if discovered after enrollment.

There may be another cause for concern about catalog accuracy and completeness. Mancuso (1976) reports that some courts are now recognizing the student right to sue for breach of contract on the ground that services were not as promised in the catalog and were therefore defective.

Colleges should consider providing all information deemed relevant for an informed decision to purchase the educational service the college provides, including accurate cost projections, expected student performance, current student and faculty perceptions, a complete description of student services, a description of student life, a description of all academic options on and off campus, student attrition rates, regional and national information on the availability of jobs by career field, and the assessment by graduates of the relationship between their education and job requirements. Stark and Marchese (1977) describe an action taken by Barat College, and suggest that it be made a common practice: an external audit of the college catalog for both accuracy and completeness.

Admissions

In addition to its role in providing potential students with accurate and complete information, the admissions office is also in an ideal position to initiate a student data base and to coordinate the flow of information throughout the institution that is necessary for academic and support services. Usually before an application is made, both the College Board's Admissions Testing Program (ATP) and the American College Testing (ACT) program supply, in addition to admissions test scores, such a great variety of information about the student that the ATP or ACT report could be the foundation of a student data base. The ATP report, for example, provides Scholastic Aptitude Test, Test of Standard Written English (TSWE), and Achievement Test scores and information about high school courses, performance, and graduation date; ethnic group; citizenship; whether English is the best language; veteran status; degree-level goal; college attendance plans (full-time or part-time, day or evening); plans to ask for educational, vocational, career, or personal counseling; plans to ask for special assistance in mathematics, reading, writing, or study skills; intended field of study (first and second choice among 222 specific fields); plans to seek advanced placement, by subject area; self-reported skills and abilities in 14 different areas; housing preferences; extent of part-time work in high school and needs for college; extracurricular activities in 8 different areas in high school and plans for college; and special information about transfer students. Information in this report could be used to inform students of specific college programs, to counsel students, and to place students in courses. This information could be augmented first by additional information supplied on the admissions application and then as events take place during the student's undergraduate years.

Compiling this information in a systematic way is a major step. But it is not sufficient. The information must flow at the right time, in individual or summary form, to those responsible for assessment, course placement, basic skills, tutoring, counseling, financial aid, housing, and student activities. One important type of use would be to communicate the existence of services or activities to those students who most likely will benefit from them. Some examples are specific types of special assistance for those who have indicated a need or have given themselves low self-ratings, opportunities for credit-by-examination, or specific extracurricular activities. The admissions office should coordinate this data flow.

In terms of recruitment, other than the obvious advice to find students who are as capable and motivated as possible, the general evidence that has been compiled on attrition is not very helpful. However, two small nuggets of information may be useful for planning recruitment strategies:

(1) Students from contiguous states are surprisingly persistent.

(2) There is a positive effect on persistence if the relative size of the college corresponds to the relative size of the student's home town: small colleges are more likely to retain students from small towns and large universities are more likely to retain students from big cities.

College Costs and Ways to Meet Them

Financial difficulty is the second most frequently cited category of reasons for dropping out, but after controlling for academic ability and motivation, there is almost no relationship between income and attrition. Because of the availability of financial aid, there is a general consensus among researchers that financial problems alone do not cause a student to drop out (Kesselman, 1976). However, various financial factors could have important motivational effects.

Tuition. Astin's (1975) excellent research of 41,000 students at 358 colleges provides a good deal of information of the effects of various financial factors. After controlling for student ability, motivation, income, financial aid received, work status, and residence, tuition did not have any effect on persistence, with one exception: blacks tended to drop out of predominantly black colleges at a significantly higher rate if the tuition was high.

Parental Aid. In his earlier study, Astin (1975, page 52) reported that parental aid had a moderate effect on persistence, reducing the four-year dropout rate by about 3 percentage points. He found this effect to be very large for blacks at predominantly white colleges (17 percentage points), but very small for blacks at predominantly black colleges (1 percentage point). In his later study, Astin (1977, page 109) reported an overall parental aid effect that was twice as large (6 percentage points).

Spouse Support. For students who were married before entering college, Astin (1975) found that major spouse support (more than 50 percent) had a dramatic effect on persistence chances (28 percentage points for men and 15 percentage points for women). However, minor spouse support (less than 50 percent) had a negative effect that was worse than no support at all.

Financial Aid. Reported results of research on the effect of financial aid on persistence is particularly confusing. In analyzing National Longitudinal Study data for the class of 1972 by means of a log-linear model, Fetters (1977, pages 87, 88) concludes that "financial aid was a significant variable in relation to withdrawal from the four-year college," particularly for students with low income and high aspirations. However, in analyzing the same data, at about the same time, by means of a multiple regression model, Peng and Fetters (1978, page 367) conclude that "neither scholarship nor loans have a significant relationship to college withdrawal in either the four-year or two-year institutions."

Scholarships or Grants. Astin (1973) at first concluded that scholarships or grants increase chances of persistence substantially (on the order of 10 to 15 percentage points), but later concluded (Astin, 1975) that they have very little effect (about 2 percentage points). Some other researchers agree with the initial finding (e.g., Selby, 1973; Blanchfield, 1971), but other researchers agree with the latter finding (e.g., Kohen et al., 1978; Fields and LeMay, 1973; Iffert, 1958).

Loans. Blanchfield (1971) found that loans did not provide incentive for the student to persist. Astin (1975), in fact, found that for men the effect is actually negative: a freshman male increases his freshman year dropout rate by 6 percentage points by receiving a loan.

Employment. Researchers have consistently found that full-time employment has a significantly negative effect on freshman persistence (e.g., Kohen et al., 1978; Astin, 1975; Iffert, 1958). However, Kohen et al. (1978) found that among juniors and seniors this effect was no longer present.

Kohen et al. (1978) also found that part-time employment has a significant negative effect on freshman persistence, although the extent of the effect is much less than for full-time employment. However, Astin (1975) is quite emphatic about the extensive positive effects of campus involvement resulting from part-time employment on campus (if the student receives no grant or loan support). He goes so far as to make a rather unusual, but interesting, suggestion that students eventually take over some of the nonacademic functions of the institution through part-time work, including maintenance, buildings and grounds, clerical work, food service, student bookstore, etc.

Other Forms of Financial Aid. Astin (1975) concludes that

—Federal work-study programs enhance persistence, particularly among blacks and students from middle-income families,

—Personal savings are not significantly related to persistence,

—GI benefits have a negative impact on persistence, perhaps because veterans may find it difficult to adjust to college life.

—ROTC benefits have a very positive effect on persistence, probably because of the commitment represented by participation in ROTC.

—Most financial aid packages appear to have negative effects on persistence: either a work-study opportunity or a grant would be superior to both.

Information. Another important financial factor that is related to persistence is the extent and quality of financial aid information supplied to students. In a survey of New Jersey college-going students (New Jersey Commission on Financing Postsecondary Education, 1976), more than one-quarter of the students with parental incomes below $6,000 failed to apply for financial aid, and 40 percent of those in the $6,000–12,000 range also failed to apply. When asked, two-thirds of these students said they did not have financial aid information.

A report by the College Scholarship Service (CSS) of the College Board (1977) suggests that this lack of information is not necessarily the fault of the students. It finds that college publications are very unclear and incomplete, partly because they are poorly written and partly because information is withheld on purpose for any of the following reasons: full costs will scare students away, the information is too complicated, there are already too many financial aid applicants, and policies are purposely kept unclear to avoid public scrutiny. As a result, many students may be deprived of the motivational enhancement of financial aid.

CSS also reported that a survey of students shows they do want long-range information on costs (four-year, year-by-year, how and when they are to be paid, and the chances and probable extent of future increases) and detailed information on financial aid (kinds available, jobs available, procedures for applying, and likelihood of obtaining the different types of aid). The CSS report suggests a common format for providing cost and financial aid information. A good follow-up study would be to evaluate the relationship between good financial aid information, student success in obtaining financial aid, and persistence.

Orientation

Obviously, to retain students by helping them make the most of their college experience, a good start is necessary. Therefore, the orientation program takes on an especially important role.

For this purpose, several suggestions have been made to upgrade the orientation process. Noel (1978) suggests that the college supply "survival tools" in question-and-answer format dealing with common problems and services that are available to students. He also suggests that the college could make a special effort to bring together students with common interests. Figler (1979) suggests that orientation is an important time to supply career information, including data on past graduates.

Astin (1975) suggests that the orientation session should be an information exchange on persistence. The college could inform the students of college-specific data on prior dropouts (including different student characteristics and activities) and of some of the generalized findings reported here. A worksheet whereby the student could calculate his or her chances of dropping out, and see how these chances would change as a result of some of the choices to be made, could be quite informative. At the same time, the students could supply information to the college to be used in persistence research, future counseling, and perhaps in planning for the next freshman class.

With respect particularly to equal-opportunity students, Garcia and Seligsohn (1978) suggest that the university make a contract with each student to supply specific support services on a continuing basis (out of operating funds). In turn, the student would contract to keep up his or her academic performance and to use the services whenever necessary.

Chickering and McHugh (1969) suggest that, because of the importance of parental expectations and support, orientation should be extended to parents. These sessions could inform parents about the typical pressures and concerns that lead to dropping out and indicate the existence of resources that might help parents and students make more informed decisions if the need arises.

Faculty-Student Interaction

Several studies have found that the interaction between faculty and students is one of the most important determinants of retention of students (Pascarella and Terenzini, 1979b; Pantages and Creedor, 1978; Terenzini, 1978). It leads to both academic and social integration in the college (Tinto, 1975). It is related to higher grades (Pascarella and Terenzini, 1978), greater self-perceived intellectual growth (Pascarella and Terenzini, 1978; Wilson et al., 1975), and higher interpersonal self-esteem (Astin, 1977). Astin (1977) reports that it has the strongest relationship of any factor to overall student satisfaction with the college experience. Wilson et al. (1975) confirm this result and report that students who interact more with faculty are sought out more by their peers, read more books for pleasure, are more likely to have graduate degree plans, and make more progress in specific academic skills, such as the ability to evaluate materials and deal with abstractions and general principles.

After controlling for seven preenrollment variables and six postenrollment variables, Pascarella and Terenzini (1979b) found a correlation of 0.24 between faculty contacts and persistence. Contacts involving intellectual concerns were significant for male and female students. Those involving career concerns and information about courses or academic programs were also significant for males. Contacts having to do with campus issues and informal socializing were significant for females. In a more recent study of the interactive effects between preenrollment variables and faculty contacts, Pascarella and Terenzini (1979a) found that the faculty contact effect on persistence operates primarily to compensate for low levels of parental education, commitment to the goal of college graduation, satisfaction with the quality and impact of peer relationships, and ability.

Wilson et al. (1975) conducted a comprehensive analysis of faculty-student interaction, including data from 1,000 faculty members at six diverse colleges. The authors found that not only is it important to the students, but both students and faculty identified it as the most important characteristic that distinguishes effective teaching. However, data presented in this analysis (page 34) show that faculty members interact with students at the rate of only one per day. In a two-week period, they interact approximately four times in the role of instructor, four times in the role of educational adviser, two times in the role of friend, two times in the role of career adviser, one time in the role of counselor, and one time in the role of campus citizen. Of course, many of these contacts could be repeated ones with the same few students. Also, these are averages: some faculty members have much more interaction than others, and small colleges seem to foster much more interaction than large institutions, which are more research oriented.

However, as stated by Wilson et al. (1975, page 124):

> Institutions of higher learning, like any of society's institutions, will never have enough personable, dynamic, and magnetic staff or bright, highly motivated, self-confident clients, no matter how diligently they attempt to recruit them. Such persons are in relatively short supply. Effective college teaching and learning, however, depend not only on the personal qualities of faculty and students but also on the nature of the relationships by which they are joined. Since interpersonal relationships are heavily influenced by institutional arrangements, substantial improvement in education might be achieved by creating conditions that maximize the likelihood of significant encounters occurring between greater numbers of teachers and students.

The institution could begin by sponsoring faculty sessions to promote the importance of faculty-student interaction in effective teaching and learning and in increasing student retention. Data from Wilson et al. (1975) show that students felt that the faculty members who helped them most did so by being available and open to any discussion, by intellectually stimulating them, by developing feelings of confidence in the student's abilities, and by demanding high-quality work. Since both students and faculty agree that continuity of interaction is important, colleges ought to involve faculty members in early freshman activities: orientation, advising, and residence hall programming. They also ought to encourage more detailed feedback to each student about his or her performance than a letter grade, more availability to students, and more time spent on campus and in the student's environment.

Although almost all faculty members feel that effectiveness as a teacher should be very important, not many view it as important in promotion and salary decisions. Instead, they say that research and scholarly activity, school service, and seniority are usually more important. If faculty-student interaction is to improve, incentive and reward structures at the college, for both teaching and advising, must encourage it.

One possibility is to utilize student feedback on the quality of instruction, and to relate results to promotion and salary decisions. An excellent tool for this purpose and for the purpose of faculty self-evaluation is

the Student Instructional Report, sponsored by the Educational Testing Service. It not only includes an analysis of faculty-student interaction, but also of teaching techniques and the organization and content of each course.

Academic Programs

Since a college exists primarily to supply academic services, it is expected that the quality of the academic programs offered would be related to student retention. Indeed, Steele (1978) found that student perception of progress toward an academic and career goal was the most significant correlate of student retention at the University of Miami, Florida, and student perception of the quality of the faculty was the second most significant correlate.

Several suggestions for the improvement of academic programs follow:

—Notify students early, preferably by means of the catalog, about any unusual features of a program (for example, if a biology department specializes in developmental biology rather than the general field).

—Plan and advertise program changes well in advance, continuing programs until current students graduate.

—Establish needed remedial programs in the summer before college entrance.

—Implement a comprehensive student remedial plan—perhaps including tutoring, programmed instruction, study-skill improvement, and self-paced learning—and make it widely known to students.

—Astin (1975) found that credit by examination is significantly related to student retention, especially for blacks. It may also be important for enticing stopouts to return.

—The selection of students for honors programs may have substantial motivating effects.

—Student ratings of faculty may be helpful in identifying and correcting instructional weakness. The Student Instructional Report of the Educational Testing Service has scales for course organization and planning, faculty-student interaction, communication, course difficulty and workload, textbooks and readings, and examinations.

—Opportunities for undergraduate research should be expanded, since research involvement strongly affects achievement, grades, persistence, aspirations for advanced degrees, and student satisfaction (Astin, 1977, page 222).

—Astin (1975) tentatively concludes that formal foreign study is related to persistence, but foreign travel without formal study increases chances of dropping out.

—Since withdrawal typically occurs during a vacation or semester break, after the end-of-semester periods of stress and anxiety (Pantages and Creedon, 1978; Sharp and Kirk, 1974; Iffert, 1958), reduce the number of semester breaks.

—Establish and consult departmental student advisory groups for staffing, budgeting, and course scheduling.

Counseling and Advising

More recommendations for reducing attrition involve counseling and advising than any other college program (Pantages and Creedon, 1978). Most studies have shown substantial beneficial effects. For example, Glennan (1975) reported that intrusive college counseling reduced the freshman attrition rate at the University of Nevada at Las Vegas from 45 percent to 6 percent in two years. In a study at the University of California at Berkeley, Frank and Kirk (1975) found that although students who voluntarily used the counseling center did not differ from students who did not use the counseling center (in terms of test scores, major fields, vocational interests, or other personal background characteristics), the five-year dropout rate for counseled students was only 27 percent, compared to 36 percent for all students, and the more frequent the use the lower was the dropout rate.

Regardless of their ultimate effect on attrition, counseling and advising services are important to help students attain as much as possible out of their educational experience. Brown et al. (1971) matched experimental and control groups in terms of age, sex, test scores, and high school record at Southwest Texas State University, San Marcos, and found that the experimental group, which was given counseling, had significantly better attitudes, study habits, and study skills.

The typical undergraduate is subject to several very strong forces. The student may be away from home for the first time, subject to a challenging, diverse, and foreign environment. There is a need to fit, to be accepted. At the same time that there is very strong peer pressure, often to resist the "establishment," there are needs to conform, to obtain adult approval, and to find adult models. There is a need to develop a sense of responsibility, to learn how to balance short-term and long-term benefits and costs. The need for occupational development is often fraught with anxiety because society has high expectations, but there usually is little opportunity to sample the options. There are fears of measuring up and of loss of freedom. There is the need to come to terms with sexual development, to learn how to give and receive love. For many, there are also financial concerns. Perhaps the most important force is the need to develop an identity by taking the difficult step of asserting independence from parental direction. At this time of conflicting forces and maximum energy, colleges herd students into large classrooms and ask them to sit still in order to acquire skills that will be useful later in life. When there is a strong conflict between the student and the environment, students who have avoidance tendencies may drop out, students who view themselves as adaptive may try to change themselves, students who view the environment as adapative may try to change it, and students who have a high tolerance for frustration may tolerate discomforts and persist (Timmons, 1975).

In the midst of these psychodynamics, faculty members are called upon to counsel students. The main areas of student concern are the following.

Financial: Aid, jobs, and money management.

Academic: Program of study, courses, basic skill development, tutoring, study habits, time management, and test taking.

Personal adjustment: Housing, student activities, social problems, family problems, handicapped needs, value and goal clarification, personal awareness and growth, decision making, assertiveness, and dealing with depression.

Career development: Identification and evaluation of options, curriculum planning, experiential learning, and placement.

The good counselor must have a thorough knowledge of the resources and services of the college, must be able to assess (and even anticipate) student needs accurately, and must be able to match student needs and college services. The counselor must be easily accessible to the student, and the advisory relationship is best when there is reasonable continuity. Since depression is often associated with the act of dropping out (Beck and Young, 1978), there is a need to deal with it by means of identifying and working on irrational thoughts and fears; developing better decision-making procedures, study habits, and time schedules; and intervening with faculty when necessary to arrange for makeup exams or to extend deadlines.

Crocket (1978) identifies 12 essential organizational elements for a successful advising program:

(1) strong commitment of the institution,
(2) a well-articulated institutional policy of who does what, where, when and how,
(3) institutional recognition and reward for good advising and its consideration in promotion and tenure decisions,
(4) careful selection of advisers who show interest in advising,
(5) in-service training of advisers,
(6) preparation of an advising handbook, in looseleaf form, containing up-to-date information an adviser may need,
(7) an advising folder for each student, containing all pertinent information,
(8) institutional outreach to students,
(9) advisers not having more than a reasonable student load,
(10) a good referral system to campus resources and services,
(11) accessibility of advisers,
(12) evaluation of the advising system by students.

Because the cost of a large staff of trained professionals administering counseling services is prohibitive, it is best for colleges to train faculty and perhaps students for counseling. Faculty advising may be an important initial step in establishing meaningful faculty-student interaction that results in both retention and other benefits. Graduate students or upperclass undergraduate students may be trained as advisers, perhaps as part of a work-study program, to act as a "first line of defense" without involving the image of official intervention. In either case, advisers must have adequate training, including counseling skills and techniques, role playing, course offerings, core requirements, referral sources, job opportunities, and data sources.

As stated previously in the discussion on admissions, the establishment of a student data base and the flow of information throughout the institution are necessary for academic and support services. The admissions office is in an ideal position to consolidate information received from national testing agencies, the admissions process, and events on campus, and to coordinate data flow throughout the institution, in particular, to student advisers. The advisory folder for each student should contain all pertinent information, and should be updated after each counseling session.

There is widespread agreement that advising programs will only work if they are well-publicized, to students, faculty, and parents, and there is institutional outreach to students. Initially, students having many of the characteristics identified in the first part of this paper as related to dropping out can be identified as dropout prone for more extensive counseling services. In addition, any cue that something might be wrong should trigger a counseling interaction: for example, a report of unsatisfactory or incomplete work, a reduction in course load (Tibby et al. (1978) found that this often occurs before dropping out), poor attendance, requests for transcripts, failure to reapply for financial aid, failure to preregister, change of major, failure to choose a major after two years, taking an off-campus job, taking a full-time job, or moving off campus. Finally, all students should have a regularly scheduled counseling session at least once a semester. In the case of an intention to withdraw, an exit interview should be required.

Career Development

In the National Longitudinal Study of the class of 1972, for academic withdrawals (defined in terms of C average or less or withdrawal because "courses were too hard" or "failing or not doing as well as I wanted"), the reason that was by far given most often for withdrawing was that "I wasn't really sure what I wanted to do." This reason was given by 73 percent of the academic withdrawals from four-year colleges and by 81 percent of the academic withdrawals from two-year colleges. In contrast, the percentages for nonacademic withdrawals were only 45 percent from four-year colleges and 32 percent from two-year colleges. A very plausible conclusion is that students who do not have even tentative career plans are not motivated to do required course work.

Watkins (1979) describes the career development process established at Doane College as a model that other liberal arts colleges might emulate. There are six developmental stages.

(1) Preenrollment includes career exploration conferences for high school juniors and seniors, career advisory manuals and workshops for high school counselors, and the establishment by each prospective student of a record of all relevant life experiences (which is later updated after each undergraduate counseling session).

(2) Career planning includes training advisers on the importance of career planning for skills assessment and counseling techniques, a career library with complete, up-to-date career information, and involvement of off-campus professionals.

(3) Curriculum development includes evaluation of all courses in terms of how the course content assists students in learning more about their career options and faculty internships to work with professionals who will be hiring graduates in their field.

(4) Experiential learning includes a student internship program and volunteer, part-time, and summer programs.

(5) Placement includes the development of a plan and the matching of student skills with employers.

(6) Postgraduation benefits include tuition-free courses and alumni job placement.

Campus Activities

Astin (1975) emphasizes that the greater the involvement with others at the college, the more likely the student will persist. Specifically, he found that membership in fraternities or sororities and participation in varsity athletics increase persistence rates for both men and women. Fetters (1977) found that satisfaction with campus social life was significantly related to persistence at four-year colleges, but not two-year colleges. Tinto (1975) reported that several studies have found that participation in extracurricular activities is directly related to college persistence, and conjectures that they provide social and academic rewards that heighten commitment to the institution.

However, Summerskill (1962) and Iffert (1938) found that social isolation is not a significant factor. Also, research findings with respect to extracurricular activities are complicated by the fact that the longer the student stays, the more chance there is to participate. Nevertheless, Terenzini and Pascarella (1977) found that at Syracuse University persisters were not more heavily involved in extracurricular activities than dropouts.

Despite the fact that research findings on the relationship between campus activities and persistence have been mixed, the greater the student involvement in campus activities, the more pronounced are the college effects of a more positive self-image, both in an interpersonal context and in terms of competence in a great variety of areas, and the more satisfied is the student with the college experience. Therefore, it makes sense for the college to encourage students to be involved in campus activities. One way to enhance this is to facilitate the flow of information to advisers about current student involvement and existing opportunities for involvement.

Housing

Astin (1977, page 109) states: "By far the most important environmental characteristic associated with college persistence is living in a dormitory during the freshman year." After controlling for entering student characteristics and other college environmental factors, living in a dormitory reduced the probability of dropping out by about 12 percentage points, compared to living with parents or in an apartment. Also, dormitory residents were more likely to aspire to a graduate or professional degree, were more likely to achieve in leadership or athletics, and were more satisifed with their college experience, particularly in the areas of student friendships, faculty-student relations, and social life.

However, data from national samples of 10,000 college students in 225 living groups compiled by Moos (1979) show that these positive dormitory effects are substantially reduced for women in coed dorms. Women in coed dorms had a higher freshman-year dropout rate of 9.7 percent, compared to 6.3 percent for men in coed dorms, 6.8 percent for women in single-sex dorms, and 7.1 percent for men in single-sex dorms. They also transferred to a different living unit at a much higher rate: 7.0 percent, compared to 2.6 percent for women in single-sex dorms, 3.2 percent for men in coed dorms, and 4.7 percent for men in single-sex dorms. In addition, they visited the student health center more often: 6.4 visits in their freshman year, compared to 4.0 for men in single-sex dorms, 4.8 for men in coed dorms, and 5.1 for women in single-sex dorms.

Moos finds differential characteristics for different types of dormitories. He finds that men's dorms stress independence, competition, and nonconformist qualities, but have less of an emphasis on intellectual and cultural activities. Women's dorms promote emotional support, have well established procedures, and are orderly, but do not stress independence, innovation, student influence on rules, or competitiveness.

Like women's dorms, coed dorms also promote emotional support. However,they also promote, to a greater extent, characteristics which are not usually promoted in women's dorms, such as innovation, student influence on rules, and involvement in spontaneous social activities and (to a lesser extent) intellectual and cultural activities. There is much less emphasis on traditional social orientation, such as dating and talking about dating, and on order and organization. There is about the same low level of competition as in women's dorms.

Thus, since coed dorms emphasize both involvement in a community-type atmosphere and more individual innovation and deemphasize tradition and order, they provide a more complicated, heterogeneous environment. Because there are also traditional pressures for academic achievement and social conformity, mostly from parents, the atmosphere may prove stressful, particularly to women.

Astin (1975) has some additional data on other living arrangements. In addition to the 12 percentage point reduction in dropping out for dormitory students, the even greater involvement in campus life of fraternities and sororities reduces the dropout rate by an additional 6 percentage points. Although an apartment does not promote retention as much as a dormitory or a fraternity or sorority, an on-campus apartment is better than an off-campus apartment. Surprisingly, compared with living with one's parents, an apartment has a substantial positive effect on retention for men, but has a substantial negative effect on retention for women.

The worst two-year pattern of housing, increasing the probability of dropping out by 18 percentage points, is to live in the dormitory in the first year and then to return home to live with parents in the sophomore year. A return home may almost be considered an interim step before dropping out. It may also be a sign of financial problems.

In light of the benefits of involvement in campus life, perhaps the current trend toward reduced dormitory construction ought to be reexamined. A challenge for future cost/benefit research on dormitories is to include data on the numbers of students expected to complete their degrees and to implement their career plans.

Every effort should be made to fill existing dormitory space, perhaps by reducing costs, improving facilities, or establishing a residence requirement (Astin, 1975, tentatively concluded that the positive dormitory effects exist even if there is a dormitory requirement). It would be a good idea to experiment with, and assess the effects of, different dormitory environments, including different staffing, programming, student groupings, roommate assignments, and exposure to upperclassmen. In addition, the various probabilities of persistence for different student housing decisions should be made known to students and their advisers.

The Withdrawal Procedure

Research has shown that the dropout decision is not usually impulsive: it is the product of much thought over a considerable period of time. Initial discussions are with friends of the same sex, then parents, and then with friends of the opposite sex. Communication with faculty or college personnel occurs much later, after the decision is crystallized (Pantages and Creedon, 1978; Cope and Hannah, 1975; Chickering and Hannah, 1969).

Cope and Hannah found that for more than three-quarters of the withdrawals, the final decision was made during the summer vacation or during a time when college was not in session, after the end-of-semester periods of stress and anxiety. Iffert (1958) found that the quarter system does indeed lead to higher attrition rates because it increases the number of potential stopping places.

Eckland (1964) found that the longer the initial period of enrollment, the greater are the chances for reenrollment and for eventual graduation. Also, the more involvement by college personnel and the more the student believes that the personnel there are concerned, the more likely is reenrollment at that college.

However, Cope and Hannah report that in a study of more than 1,000 dropouts from 13 colleges, for almost half the dropouts, the college knew nothing about where the students were going or what they were doing, and for the other half the information was very often incorrect. Even if only to increase the probability of reenrollment, exit interviews should be required.

Two-Year Colleges

Even after controlling for the high dropout proneness of entering students in terms of background, ability, and aspirations, and the lack of financial aid, job opportunities, and student housing, two-year colleges still have higher dropout rates than expected (Astin, 1975). Their students also are less likely to be involved with the college, experience a relatively small increase in interpersonal self-esteem, and are less likely to implement their career plans (Astin, 1977).

Perhaps two-year colleges could simulate the four-year college environment by weekend or week-long educational retreats, cultural events on campus, improved parking, organized study groups, on-campus employment opportunities, and improved campus recreational facilities and activities. They could also do

everything possible to smooth the transition to four-year colleges, including joint meetings with upper-division colleges to work out details and organize tours of potential transfer colleges.

Administration of the Retention Program

As stated originally, the best retention program may not really be a specific retention program: it may be an effort to upgrade the level of educational service, in its broadest sense, that is provided for the benefit of the students. However, particularly if the emphasis is on change from old attitudes of taking students for granted to new attitudes of serving students, effecting this change could be called a "retention program."

Beal and Noel (1979) summarized survey returns from 879 colleges about their retention programs. Of those having such a program, one of the initial moving forces was most often the President (48 percent of the time). Because a retention program is most likely to cut across all areas of the institution, the President's initial (and continuing) involvement seems imperative. Others who were frequently initial moving forces were the Vice President for Student Affairs (34 percent), the Vice President for Academic Affairs (33 percent), the Admissions Office (30 percent), and Counseling Services (23 percent). (Note that there could be more than one initial force.)

The majority of the colleges (58 percent) had not assigned anyone in particular to coordinate the retention program. Of those that had, 20 percent of the time the coordinator turned out to be the Dean of Students, but others frequently given this responsibility were an academic administrator (14 percent), the Director of Admissions (12 percent), a student affairs staff person (10 percent), or the Director of Counseling or a counselor (8 percent). This person most frequently reported directly to the President (43 percent of the time), which again makes the most sense, but sometimes instead reported to the Academic Vice President (24 percent) or the Student Affairs Vice President (15 percent).

Reports on the retention programs were categorized into 15 major action programs. The most frequently designated one was learning and academic support (24 percent). Other popular major action programs were advising (13 percent), orientation (13 percent), and early warning systems (12 percent). When the colleges were asked to indicate how well these programs worked in terms of retention, the highest ranked programs were new policies and structures, learning and academic support, and early warning systems. It is very interesting that in terms of the overall success of the programs, none of these three were highly ranked: the top three were peer programs, career assistance, and multiple action programs. When the colleges were asked to identify any of 20 specific action programs, the most frequently identified action programs that were included in the retention program were improvement in academic advising (52 percent), specific orientation activities (50 percent), and exit interviews (40 percent).

The best first step in forming a retention program may be what Noel (1978) calls a campus health check. Although a great deal of evidence has been presented here and elsewhere associating many student and college characteristics with retention or attrition, there are substantial differences among institutions. Therefore, it is important to do a local dropout study.

One way to accomplish this is to participate in the College Board's Admissions Testing Program Summary Reporting Service (ATP-SRS). What is referred to as Round 3 is an analysis of the characteristics of a college's freshman-year persisters and dropouts in terms of test scores, high school rank, socioeconomic characteristics, and college plans. An additional service which is part of ATP-SRS, called the Admissions Yield and Retention Report, calculates retention yields for 600 different student groups. A separate graphical plotting service can also be used to represent both admissions and retention yields by student group.

In addition, a more specific, institutionally tailored study should be conducted each year of both dropouts and persisters. Dropouts could be contacted before they leave, as part of a good counseling system, in the process of leaving, as part of the exit interview, or after they leave, by mailed questionnaires (first class, with two or three follow-ups, is best). In addition to finding out why each student is leaving (left) and what the student will be (is now) doing, it is important to ascertain the student's experiences since entering college, including academic and career progress, residence, work status, and financial aid. By obtaining this latter information from a sample of persisters, the experiences of dropouts and persisters can be compared.

The Student Outcomes Information Service (SOIS) is a new service cosponsored by the National Center for Higher Education Management Systems and the College Board to facilitate local student attrition studies. A college may obtain from SOIS one of two 19-item questionnaires (one for four-year and one for two-year col-

leges). They contain questions on demographic background, college goals, college attendance, students' reasons for leaving, evaluation of various college services, and plans for additional education, in addition to space for optional personal identification, local items, and written comments. SOIS also provides optional processing and analytical services.

Information on student experiences since entering college can also be obtained as part of a comprehensive program for institutional self-study, evaluation, and planning, by the Institutional Research Program for Higher Education (IRPHE) of the Educational Testing Service. One of the several instruments offered for this purpose is called Student Reactions to College (SRC). There is a different 150-item questionnaire for four-year and two-year colleges. The results are grouped into 19 areas of interest in 4 major dimensions:

(1) Processes of instruction: Quality, form, student-centered, academic performance, grading, studying, instructor accessibility, and involvement with faculty.

(2) Program planning: Counseling and advising, planning, and programming.

(3) Administrative affairs: Registration and scheduling, library and bookstore, rules and regulations, and administrative procedures.

(4) Out-of-class activities: Campus climate, organized student activities, help with living problems, and financial and related problems.

In addition to results for all students, up to five institutionally defined subgroups may be used. These subgroups may include students who are defined to be dropout prone or who have already dropped out.

Other IRPHE instruments may be related to students' satisfaction with their educational experience and thereby to student retention. The Institutional Functioning Inventory (IFI) can be used to compare views of faculty, administrators, and students on how the institution is functioning: 2 of 11 scales are concern for undergraduate learning and democratic governance. The Institutional Goals Inventory (IGI) can be used to ascertain what faculty, administrator, and student views are of the institutional goals, as they exist on campus and as they would like them to be: 6 of the 20 goals are academic development, individual personal development, vocational preparation, democratic governance, intellectual/aesthetic awareness, and off-campus learning.

One final word on the interpretation of student data: since many student characteristics and college experiences are interrelated, it is best to control for important variables. A relatively simple way is to subgroup the student data, for example in terms of test scores, and to compare results for different subgroups. A better way is to use stepwise multiple regression analysis, which automatically controls for variables that had previously entered the regression equation: Astin's analyses (1975 and 1977) were based on this technique. Other related analyses that may be used are discriminant analysis, path analysis, and the log-linear model. The latter is a relatively new technique for categorizing all variables and looking at all possible combinations in a hierarchical process: it was used along with multiple regression by Fetters (1977), and the two results were comparable.

SUMMARY

Overall Graduation and Dropout Rates.

Based on a representative cross section of four-year colleges, 35–40 percent of the entering freshmen graduate in four years from their college of original entry. An additional 30–50 percent graduate after four years, or from a different college, or both. The remaining 10–35 percent are dropouts who never receive a degree.

Students' Reasons for Dropping Out.

The reasons students give include academic matters, financial difficulties, motivational problems, personal considerations, dissatisfaction with college, military service, full-time jobs, the expressed need for new, practical, nonacademic experiences, and the lack of initial plans to obtain a degree.

Does College Make a Difference?

Effects of College. The evidence indicates that college does make a difference in improvement in self-image, social maturity, interests, competence, and employment.

Leave of Absence. The return rates of students who take a leave of absence depend on the type of institution: they range from 20 to 30 percent for junior or community colleges and from 90 to 95 percent for prestigious private universities. Graduation rates of those who return are almost as high as those who do not take a leave, and returning students overwhelmingly report good experiences during their leave. Because there is no evidence that nonreturning students are worse off than students who persist even though they have the inclination to take a leave, the general beneficial effects of college do not seem to be enough of a reason to discourage students from taking a leave of absence.

Student Persistence

Table 7 summarizes what the last 50 years of retention research have shown about the types of students who are more likely to persist and the types who are less likely to persist.

TABLE 7. Relationship Between Student Characteristics and Persistence

Characteristic	Related to persistence	Related to attrition	Not related or not clear
Demographic factors			
Age			x
Sex			x
Parental income			x
Parental education	High level	Low level	
Father's occupation			x
Ethnic Group	Oriental Hispanic		
Religion	Jewish		
Marital status	Married male	Married female	
Hometown location	Contiguous state	Out of state but not contiguous	
Hometown size		Small town	Big city Suburb
Academic Factors			
High school record	Good record	Poor record	
SAT	High scores	Low scores	
College Board Achievement Tests	Taking test, particularly high scorer	Not taking test	
High school program	College preparatory		
High school academic rating	Good rating	Poor rating	
High school size			x
High school type			x
Years of study of various subjects	More than average in English, mathematics, foreign language, or physical science	Less than average in English, mathematics, foreign language, or physical science	Years of study in social studies and biological science
Performance in college	Good grades	Poor grades	

TABLE 7. Continued

Characteristic	Related to persistance	Related to attrition	Not related or not clear
Areas of study	Biological science Health-related professions History and cultures Elementary education	Agriculture Forestry and conservation Physical education Architecture and environmental design Engineering Psychology Police science	Business Education (other than elementary) Social sciences (other than psychology)
Study habits	Good habits	Poor habits	
Motivational factors			
Degree-level goal	High goal	Low goal	
Vocational goal			x
Precollege expectation			x
Reasons for attending college			x
Parental influence			x
Personal factors			
Personality traits			x
Expressed need for personal counseling		x	
Smoking cigarettes		x	
Financial factors			
Tuition	At predominantly black colleges		At predominantly white colleges
Parental Aid	x		
Spouse support	Major support		
Financial aid			x
Scholarships or grants			x
Loans			x
Employment	Part-time on campus	Full-time	Part-time off campus
Other forms of aid	Federal work-study ROTC benefits	GI benefits Financial aid packages	
Information			x

General College Environmental Factors and Student Persistence

In the same way that some students are more likely to persist than others, some general college environmental factors are more conducive to student persistence than are others. This is partly, but not completely, because certain types of colleges attract students who are more likely to persist. Table 8 shows the general environmental characteristics of colleges that are more conducive to student persistence and the characteristics of those that are less conducive.

TABLE 8. Relationship Between General College Environmental Factors and Persistence

Characteristic	Related to persistence	Related to attrition	Not related or not clear
Type of college	Four-year	Two-year	
Control of college	Private	Public	
Religion	Religiously affiliated		
Coeducation	Single-sex		
Location	Northeast South	West Southwest	
Academic level	Selective	Nonselective	
Size			x
Match of student and college	Student-college fit in terms of hometown/college size, religion, race, and parental education/selectivity High-ability student at selective college	Lack of student/college fit in terms of hometown/college size, religion, race, and parental education/selectivity Low-ability student at nonselective college	High-ability student at nonselective college Low-ability student at selective college

Student-College Environment Fit. While accepting the evidence that some students are more likely to persist than others and that some college environments are more conducive to persistence than others, most research has concluded that the fit between the student and the college is an important factor. For example, a student from a small town is more likely to persist at a small college, and a large university is more likely to retain a student from a large city; a match between the religious affiliation of the college and the student aids retention; a student is more likely to persist at a college if he or she is in the racial majority. However, there is no evidence that a match between a student's ability and the selectivity level of the college aids persistence.

What Can a College Do to Enhance Retention?

For some dropouts, their source of dissatisfaction with their college would have been present regardless of the educational service that was provided: they did not really want to go to college, the time was right for a break in their formal education, their talents could be better used elsewhere, or their original college choice was an error. For others, a better, more complete educational service offered by their college may have prevented or reduced the source of their dissatisfaction, may have changed their perception of long-range college benefits, and may have resulted in retention. For the benefit of this latter group and for the benefit of the perhaps larger group of dissatisfied students who would not consider withdrawal as an option, a college can deal with its dropout problem by doing everything it can to upgrade the educational service, in its broadest sense, that it provides its students. Such an attack on the root causes that contribute to attrition would benefit all students and would be an excellent recruitment tactic for future classes.

Preenrollment. Because what may be a small, insignificant disappointment if known before enrollment can become a major source of dissatisfaction if discovered after enrollment, colleges should consider providing all information deemed relevant for an informed decision to purchase the educational service they provide, including accurate cost projections, expected student performance, current student and faculty perceptions, a complete description of student services, a description of student life, a description of all academic options on and off campus, student attrition rates, regional and national information on the availability of jobs by career field, and the assessment by graduates of the relationship between their education and job requirements. An external audit of the college catalog for both accuracy and completeness would be a good way of accomplishing this.

Admissions. The admissions office is in an ideal position to initiate a student data base and to coordinate the flow of information throughout the institution that is necessary for academic and support services. In terms of recruitment strategies, two small nuggets of information may be useful: students from contiguous states are surprisingly persistent, and small colleges are more likely to retain students from small towns and college universities are more likely to retain students from large cities.

College Costs and Ways to Meet Them. Financial difficulty is the second most frequently cited category of reasons for dropping out, but after controlling for academic ability and motivation, there is almost no relationship between income and attrition. Because of the availability of financial aid, there is a general consensus among researchers that financial problems alone do not cause a student to drop out. In fact, financial aid may be a motivational enhancement. Also, the campus involvement of part-time work on campus may promote retention.

Students say they want long-range information on costs—four-year, year by year, how and when they are to be paid, and the chances and probable extent of future increases—and detailed information on financial aid—the kinds available, the jobs available, procedures for applying, and the likelihood of various students obtaining the different types of aid. There may very well be relationships among good financial aid information, student success in obtaining financial aid, and persistence.

Orientation. For a good start of the college experience, the orientation program could

- include "survival tools" in question-and-answer format dealing with common problems and services that are available to students,
- bring together students with common interests,
- supply career information, including data on past graduates,
- inform the students of college-specific data on prior dropouts, for different student characteristics and activities, and of some of the generalized findings reported here,
- supply a worksheet whereby students could calculate their chances of dropping out, and see how the chances would change as a result of some of the choices to be made,
- set up a contract with each equal opportunity student to supply specific support services on a continuing basis (out of operating funds) in return for the student's promise to keep up his or her academic performance and to use the services whenever necessary,
- be extended to parents, informing them about the typical pressures and concerns students face that lead to dropping out and to indicate the existence of resources that might help parents and students make more informed decisions if the need arises.

Faculty-Student Interaction. Several studies have found that the interaction between faculty and students is one of the most important determinants of retention of students. However, faculty members interact with students at the rate of only one per day.

Colleges should create conditions that would maximize the likelihood of significant encounters occurring between faculty and students, for effective teaching and learning and for increasing student retention by

- sponsoring faculty sessions to promote the importance of faculty-student interaction,
- involving faculty members in early freshman activities (orientation, advising, and residence hall programming),
- encouraging more detailed feedback than a letter grade to each student about his or her performance, more availability of faculty to students, and more time spent by faculty on campus and in the student's environment,
- establishing incentive and reward structures for faculty-student interaction, particularly in faculty promotion and salary decisions.

Academic Programs. Since a college exists primarily to supply academic services, student perception of programs leading toward an academic and career goal and student perception of the quality of the faculty are significant correlates of retention. Some suggestions for improvement are

- notify students early of unusual program features or changes,
- implement a comprehensive remedial plan, and begin it in the summer before college begins,
- encourage credit by examination and the establishment of honors courses,
- utilize student ratings to identify and correct instructional weakness,
- expand opportunities for undergraduate research,
- encourage formal foreign study,
- establish and consult departmental student advisory groups,
- reduce the number of semester breaks.

Counseling and Advising. Most studies show that counseling and advising services have substantial beneficial effects on retention, but, regardless of their ultimate effect on retention, they are important to help

students attain as much as possible out of their educational experience. Some important aspects of a successful advising program are

- strong institutional commitment,
- a well-articulated policy of who does what, where, when, and how, including regularly scheduled sessions at least once a semester,
- institutional recognition and reward, particularly in promotion and tenure decisions,
- careful selection of advisers, including both faculty and graduate students, who show interest and aptitude in advising,
- in-service training, including counseling skills and techniques, role playing, course offerings, score requirements, referral sources, job opportunities, and data sources,
- preparation of an advising handbook, in looseleaf form, containing up-to-date information of the resources and services of the college,
- an advising folder for each student, containing all pertinent information from national testing agencies, the admissions process, and events on campus,
- advisers who identify and work on irrational thoughts and fears, develop better decision-making procedures, study habits, and time schedules, and intervene with faculty when necessary to arrange for makeup exams or to extend deadlines,
- outreach to students having many of the characteristics that make them more likely to drop out or to those whose actions indicate that something may be wrong, for example, a report of unsatisfactory or incomplete work, a reduction in course load, poor attendance, requests for transcripts, failure to reapply for financial aid, failure to preregister, change of major, failure to choose a major after two years, taking an off-campus job, taking a full-time job, or moving off campus,
- a reasonable student load for advisers,
- a good referral system to campus resources and services,
- accessibility of advisers,
- evaluation of the advising system by students.

Career Development. Students who do not have even tentative career plans are not motivated to do required course work. Colleges could

- offer preenrollment career exploration conferences,
- prepare career advisory manuals,
- emphasize to advisers the importance of career planning,
- run a complete, up-to-date career library,
- evaluate course content in terms of career options,
- encourage faculty contact with off-campus professionals,
- encourage student experiential learning,
- develop a comprehensive student placement plan, before and after graduation.

Campus Activities. Despite the fact that research findings on the relationship between campus activities and persistence have been mixed, the greater the student involvement in campus activities, the more pronounced are the college effects of a more positive self-image, both in an interpersonal context and in terms of competence in a great variety of areas, and the more satisfied is the student with the college experience. Therefore, it makes sense for the college to encourage students to be involved in campus activities. One way to enhance this is to facilitate the flow of information to advisers about current student involvement and existing opportunities for involvement.

Housing. Perhaps the most important environmental characteristic associated with college persistence is living in a dormitory during the freshman year. However, the positive dormitory effects are substantially reduced for women in coed dorms. The greater involvement in campus life of fraternities and sororities has additional retention effects, above those of freshman-year dormitory residence. Every effort should be made to fill existing dormitory space—perhaps by reducing costs, improving facilities, or establishing a residence requirement. It would be a good idea to experiment with, and assess the effects of, different dormitory environments, including different staffing, programming, student groupings, roommate assignments, and exposure to upperclassmen. In addition, the various probabilities of persistence for different student housing decisions should be made known to students and their advisers.

The Withdrawal Procedure. Even if only to increase the probability of reenrollment, exit interviews should be required.

Two-Year Colleges. Even after controlling for the high dropout-proneness of entering students in terms of background, ability, and aspirations, and the lack of financial aid, job opportunities, and student housing, two-year colleges still have higher dropout rates than expected. Their students also are less likely to be involved with the college, experience a relatively small increase in interpersonal self-esteem, and are less likely to implement their college plans.

Perhaps two-year colleges could simulate the four-year college environment by weekend or week-long educational retreats, cultural events on campus, improved parking, organized study groups, on-campus employment opportunities, and improved campus recreational facilities and activities. They could also do everything possible to smooth the transition to four-year colleges, including joint meetings with upper-division colleges to work out details and organize tours of potential transfer colleges.

Administration of the Retention Program. The best retention program may not really be a specific retention program: it may be an effort to upgrade the level of educational service, in its broadest sense, that is provided for the benefit of the students. However, particularly if the emphasis is on change from old attitudes of taking students for granted to new attitudes of serving students, effecting this change could be called a retention program. The moving force should be the President, and the coordinator should report directly to the President.

IN CONCLUSION

Although a great deal of evidence has been presented here and elsewhere associating many student and college characteristics with retention and attrition, there are substantial differences among institutions. Therefore, it is important to begin by doing a local dropout study. The Admissions Testing Program Summary Reporting Service (ATP-SRS) of the College Board or the Student Outcomes Information Service (SOIS) of the College Board and the National Center for Higher Education Management Systems may be useful for this purpose. Additional information on student experiences after entering college can be obtained through the many services of the Institutional Research Program for Higher Education (IRPHE) of the Educational Testing Service.

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